I. PURPOSE AND NEED

A. Project Purpose

The proposed Intercounty Connector (ICC) project is intended to link existing and proposed development areas between the I-270 and I-95/US 1 corridors within central and eastern Montgomery County and northwestern Prince George's County with a state-of-the-art, multi-modal, east-west highway that limits access and accommodates passenger and goods movement (***Figure I-1***). This transportation project is intended to increase community mobility and safety; to facilitate the movement of goods and people to and from economic centers; to provide cost-effective transportation infrastructure to serve existing and future development patterns reflecting local land use planning objectives; to help restore the natural, human, and cultural environments from past development impacts in the project area; and to advance homeland security.

B. Project Needs

1. Community Mobility and Safety

Mobility in the developed portions of Montgomery and northwestern Prince George's Counties is severely limited, in part because there is no continuous high capacity transportation facility except the Capital Beltway. This lack of mobility limits job opportunities, interaction between communities, and access to government and community services, and contributes to a decrease in the quality of life. The study area has developed without a planned regional east-west highway. The lack of such a highway severely limits mobility and creates safety hazards in and among the developed portions of Montgomery and northwestern Prince George's Counties. The development that has occurred in the region has resulted in significant east-west travel, but absent an ICC, the local road system must accommodate extremely high volumes of traffic. This overloads local roads, resulting in clogged intersections, longer travel times, and limited access for local residents from their driveways and smaller side streets. There are numerous accidents of all types and severity due to the dangerous mix of local, longer-distance, and service vehicles mixing with bicycles and pedestrians. The number of potential conflicts due to the numerous driveways, side streets, and other access points contributes to the unsafe condition on the local road network.

2. Movement of Goods and People To and From Economic Centers

An east-west highway north of the Capital Beltway is needed to support the continued attraction and retention of businesses and employment opportunities in the region. The extensive economic development areas include the I-270 High Technology Corridor, the Baltimore-Washington International Thurgood Marshall (BWI) Airport development area, and the I-95/US 1 corridor. New highway capacity that is efficient and reliable is necessary to accommodate passenger and freight travel, moving people, goods, and services throughout the region. Growing congestion in the area today increases costs of doing business, in part because of longer travel times and unreliability to the detriment of the health of the economy.

3. Local Land Use

Montgomery County and northwestern Prince George's County have developed as planned, with intense development in jobs and households along the I-270, I-95/US 1, and I-495 corridors. An east-west regional highway facility has long been a part of local land use planning in order to support the region's orderly growth and development patterns. The foundation for Montgomery and Prince George's Counties' general plans (and updates) for the last 40 years has been the "On Wedges and Corridors" land use concept, which channels growth into development corridors radiating from or ringing the District of Columbia while preserving wedges of open space, farmland, and lower density residential areas. This overall planning concept is periodically updated in a public process that gives due consideration to sustainability, land preservation, development density, and environmental sensitivity. Local officials have carefully executed these progressive land use concepts. Prince George's County expanded upon this concept by adopting a nodes, centers, and tiers concept in its land use planning, which is reflected in the Prince George's County 2002 General Plan. Many land use and environmental stewardship principles of Maryland's more recent "smart growth" policies are based on the concepts of the "On Wedges and Corridors" plan.

4. Environmental Stewardship

The planned development that has occurred has created certain stresses on the study area's environments, including the rich natural resources associated with the north-south oriented stream valleys and their parks. Alternatives for the new east-west highway have been developed in an environmentally sensitive manner using state-of-the-art measures to avoid, minimize, and mitigate impacts. Further, the alternatives include appropriate environmental restoration and enhancements. The land use plans in Montgomery and Prince George's Counties highly value environmental stewardship and resource protection. These plans allocate certain areas to private and public development and to preservation and open space. The ICC is a major public works project in an already highly developed area, and as such, it needs to be located and designed with full consideration of the current and future condition of important environmental resources in the study area. The alternatives incorporate restoration and enhancement features to help bring about improvements to natural, cultural, and human environmental conditions, including but not limited to those that exist today because of past development in the area. These environmental restoration and enhancement features will go beyond any compensatory mitigation incorporated into the Preferred Alternative.

5. Homeland Security

A new east-west highway would provide much needed system capacity for population evacuation and emergency vehicle access in and around the National Capital. With regular congestion on the Capital Beltway, made worse by accidents or other incidents, the region needs a reliable alternate east-west route for emergency response situations. Additional east-west multimodal highway capacity north of the Capital Beltway would provide a grid of high capacity transportation needed in the event of an emergency or sudden need for access.

The Washington metropolitan area is home to many government, military, and community installations with unique homeland security concerns and responsibilities. These agencies depend on a clear, expeditious access and evacuation route always being available. On September 11, 2001, it became clear that this region does not contain sufficient highway capacity to accommodate city-wide and metro area evacuation and subsequent emergency planning has underscored the need for an ICC between the interstate corridors north of the Beltway.

C. Historical Background

The ICC has been the subject of several studies over the last five decades. In the 1950s, an outer circumferential highway (Outer Beltway) was first proposed by the National Capital Planning Commission (NCPC) for the Washington D.C. area. However, in 1968, the Outer Beltway was dropped from NCPC's plan, but the ICC link between I-270 and US 1 was retained, after extensive interagency consultation, to provide a critical lateral link in the regional transportation network. In 1979, the Maryland State Highway Administration (SHA) initiated the first project planning study for the ICC, and in 1991 SHA initiated a second study that included various transit options and road alignment alternatives not considered in the first study. These studies resulted in Draft Environmental Impact Statements (DEIS) and public hearings (in 1983 and 1997); however, neither previous study resulted in a Final EIS or Record of Decision.

In 1998, the Maryland Department of Transportation (MDOT) convened a panel of national and local experts known as the Transportation Solutions Group (TSG) to make recommendations for improving mobility and quality of life in the region. A majority of the group recommended providing improved access through a new east-west, tolled, limited access facility. In early 2002, the Montgomery County Council's Transportation Policy Report Task Force (TPR-2) issued its final report containing an extensive discussion of arguments for and against the ICC, with a majority of Task Force members in support of the project along the Montgomery County Master Plan Alignment with enhanced environmental mitigation and improved design of the facility.

In September 2002, President George W. Bush issued Executive Order 13274, *Environmental Stewardship and Transportation Infrastructure Project Reviews*, which included the formation of a Federal Transportation Infrastructure Streamlining Task Force to monitor progress of selected priority projects and to examine policy issues that promote efficient interagency coordination and improved environmental decision making. Based on a request from Congressman Robert Ehrlich and County Executive Douglas Duncan, the U.S. Secretary of Transportation designated the ICC project as one of 15 transportation projects being monitored by the Federal Task Force. As a national priority project, the ICC study receives close Federal and State oversight.

D. Agency Concurrence and Cooperation

In June 2003, the Lead Agencies initiated the current ICC study. The SHA partnered with the Maryland Transportation Authority (MdTA) as the lead State agencies and the Federal Highway Administration (FHWA) as the lead Federal agency. The ICC study is being conducted using a streamlined environmental review process that involves significant early coordination with Federal, State, and local transportation, environmental, and planning agencies. This streamlined

process relies on comment by all involved agencies, and concurrence from the US Army Corps of Engineers (USACE) and Maryland Department of the Environment (MDE) at key milestones. Concurrence demonstrates that agency comments have been satisfactorily considered, and allows the study documents to be used by these agencies for National Environmental Policy Act (NEPA) and permitting purposes. Furthermore, USACE, United States Environmental Protection Agency (EPA) and MDE are cooperating agencies in the ICC study.

The Lead Agencies proposed the current ICC study Purpose and Need Statement (sections A and B above) at an Interagency Workshop and scoping meeting in June 2003. After receiving and considering all agency comments, the following agencies reached agreement on the content of the Project Purpose and Need Statement in July 2003:

- Maryland State Highway Administration
- US Army Corps of Engineers
- US Environmental Protection Agency
- Federal Highway Administration
- US Fish and Wildlife Service
- Maryland Department of the Environment
- Maryland Department of Housing and Community Development
- Maryland Historical Trust/Maryland State Historic Preservation Officer
- Maryland Department of Natural Resources
- Maryland Department of Planning
- Maryland Department of Transportation
- Maryland Transportation Authority
- National Park Service

The Purpose and Need Statement was also presented for review and comment to the public through a series of public workshops in June 2003 and on the project website. The USACE and MDE provided letters of concurrence on September 12, 2003 and November 12, 2003, respectively.

E. Information on Project Needs

This section will provide additional information related to the five stated elements of the Purpose and Need of the proposed ICC project: to increase community mobility and safety; to facilitate the movement of goods and people to and from economic centers; to provide cost-effective transportation infrastructure to serve existing and future development patterns reflecting local land use planning objectives; to help restore the natural, human, and cultural environments from past development impacts in the project area; and to advance homeland security. In this study, the proposed action is a state-of-the-art, multi-modal, east-west highway that limits access because it is the type of transportation improvement that responds to the study area needs. The purpose and need for the ICC project present the broad objectives that the proposed action is intended to fulfill. Other types of improvements could address some elements of the purpose and need to varying degrees, but also often serve different objectives. For example, rail transit may increase community mobility for some portion of the study area population, but would not

address the need for goods movement between economic centers. Likewise, an arterial road with continuous access may facilitate the movement of people and goods, but would serve to foster development, which is not an objective of this project or a need in the study area. Other transportation needs in the study area, such as intersection operation improvements, are not the purpose of this project.

The five elements of the ICC Purpose and Need are each important components in the evaluation of the project, but these elements have not been assigned specific numerical weights. While the relative importance of the elements of Purpose and Need are subjective with respect to an individual's perspective or an organization's mission, the ICC study team considers that increasing community mobility and safety and facilitating the movement of goods and people are the primary needs of the study area. The land use, environmental stewardship, and homeland security elements are also important and analyzed in detail in this FEIS. All elements of the Purpose and Need can be evaluated both quantitatively and qualitatively.

1. Mobility and Safety

This section provides a discussion of the regional mobility trends in the study area, a description of the existing and currently planned transportation network in the study area, and an analysis of data that measures the traffic capacity and safety conditions in the study area.

a. Regional Mobility Trends

The ICC study area is a significant contributor to the economy in the State of Maryland and the Washington metropolitan area. The ICC study area is home to a population of 412,045 people, and is contained in a bi-county area that has a population of approximately 1.6 million people. As with most growing and economically vibrant regions, the worsening of transportation access and mobility is a major challenge in the study area. The Washington metropolitan area is one of the most congested regions in the country, consistently ranking in the top three U.S. cities in annual hours of delay per traveler. In the 20 years from 1982 to 2002, travelers in the region experienced an increase of 46 hours of delay annually, from 21 hours to 67 hours, according to the Texas Transportation Institute's annual mobility report (Texas Transportation Institute, 2004). In a 14-month study completed in 1999, the TSG, a committee of national and local experts looking at mobility trends in Suburban Maryland, found the following:

- The Washington region faces worsening transportation problems with insufficient travel choices, and these problems threaten attainment of other regional quality of life goals
- The impact of dispersed and low-density land use patterns on travel choices, environmental quality, and other goals is a growing concern
- Solving these problems is increasingly daunting since available strategies are limited in effectiveness and/or feasibility
- Fundamental differences in perspectives among stakeholders – differences in emphasis among goals, in views about feasibility and effectiveness of strategies, etc. – have made agreement on transportation decisions difficult to achieve

- In the absence of significant travel behavior changes, peak-period roadway congestion in the study area cannot be eliminated, and therefore, the focus must broaden to include other metrics, such as reduction in growth in hours of congestion, and/or increase in the number of households with convenient access to competitive transit services
- A package of innovative strategies, including transportation pricing tools, can reduce or accommodate a portion of the projected growth in vehicle travel, while enhancing travel options and mobility in the study area
- The State of Maryland and local governments in the Washington region have been leaders in beginning to tackle many of these transportation and land use challenges (Transportation Solutions Group Report, 1999, available from the Maryland Department of Transportation)

The TSG confirmed that there is no "silver bullet" that will solve the region's transportation challenges, and concluded that a combination of policies, services, and facilities would each play a role in creating more travel choices to meet the mobility needs of a growing community. The TSG recommended the following specific strategies to improve and maintain the region's quality of life:

- Promote Smart Growth by reducing barriers to, and providing incentives for, infill development in priority growth areas
- Improve the competitiveness of transit and expand the transit network
- Adopt innovative transportation pricing techniques
- Manage infrastructure more efficiently and encourage intermodal trip making through greater use of Intelligent Transportation System (ITS) technology
- Make selective road network improvements, including congestion relief and community building initiatives, Fiscally Constrained Long Range Plan (CLRP) implementation and a new east-west, value-priced, limited access highway connecting Montgomery and Prince George's Counties

These broad recommendations accurately reflect the direction that public officials and stakeholders have taken toward policies and programs in the region. The ICC project is one element in a series of related strategies to address regional mobility. The TSG also recommended that a Congestion Relief Study be conducted to address short and long term traffic congestion in Montgomery and Prince George's Counties. That study resulted in improvements to some of the highest volume, poorly operating intersections with minimal disruptions to the environment and the community.

As reflected in the Purpose and Need Statement, the ICC project is intended to make a contribution to the community mobility and safety, access to development and economic centers, and homeland security, but the project in isolation is not intended to and cannot eliminate traffic congestion throughout the region.

b. Existing and Planned Transportation Network

Figure I-2 highlights the four major existing east-west routes between I-270 and I-95 and shows the existing transportation network in the study area. Certain future improvements to the existing network are planned regardless of whether an ICC is built. In all of the travel demand projections and traffic analysis presented in this document, future traffic operations include all roadway and transit improvements that appear in the Transportation Planning Board's 2004 CLRP. (The 2004 CLRP is a 20-year program of all highway and transit projects planned in the region.) In addition, numerous intersection improvements to be performed by the local jurisdictions are assumed to be operational in the future traffic projections.

The north-south routes in the regional network radiate from the I-495 circumferential highway (I-495 or Capital Beltway), with I-95 and I-270 serving as the major transportation and development corridors. I-495 forms the southern boundary of the study area because it separates the Maryland suburbs' transportation network to the north from the Washington D.C. urban area's transportation network to the south. I-270 on the west side of the study area begins at I-495 and ends in Frederick, Maryland, about 30 miles north of the Beltway, at I-70. In the study area, I-270 generally consists of 12 lanes including collector-distributor and High Occupancy Vehicle (HOV) lanes. Metrorail runs in the I-270 Corridor to Shady Grove; the planned Corridor Cities Transitway would run from Shady Grove to Frederick. I-95 and US 1 on the east side of the study area are the continuous routes connecting the east coast of the U.S., and continue to Baltimore, north of the study area. I-95 generally consists of eight lanes in the study area. US 29 (Columbia Pike) is generally a six-lane divided arterial in the study area, except at the crossing of the Patuxent River on the northern boundary of the study area, where US 29 narrows to a four-lane bridge before widening again and continuing north to Columbia, Maryland and ending near Baltimore at I-70. Other north-south oriented State routes within the study area, including MD 650 (New Hampshire Avenue), MD 97 (Georgia Avenue), MD 182 (Layhill Road), MD 185 (Connecticut Avenue), and MD 355 (Rockville Pike), are major arterials with concentrated areas of development as planned. Metrorail runs under MD 97 to Glenmont, south of Aspen Hill.

Since the previous ICC study released in 1997, several major transportation improvements have been completed in the study area. These include: MD 28 east of I-270 constructed to four lanes and MD 28 (Norbeck Road) widened to four to six lanes in some segments; MD 108 from Olney Mill to MD 182 widened to four lanes; MD 355 from MD 124 to MD 27 widened to four lanes; Norbeck Road Extended (MD 28/198) constructed at two to four lanes; I-270 NB from I-495 to MD 118 and SB from I-370 to I-495 designated as HOV; I-270 Spur widened to six lanes; interchanges upgraded at I-270/MD 187, I-495/MD 185, US 29/MD 193, and MD 650/US 29; and construction is underway to upgrade US 29 to an expressway from MD 650 to the Howard County Line at the bridge over the Patuxent River.

A motorist wishing to traverse the study area on the most direct east-west route between I-270 and I-95 currently must follow one of the options described below, as numbered on ***Figure I-2***:

- Shady Grove Road/Muncaster Mill Road (MD 115)/Norbeck Road (MD 28)/ Spencerville Road (MD 198)
- Montgomery Avenue/Norbeck Road (MD 28)/Bel Pre Road/Bonifant Road/Good Hope Road/Briggs Chaney Road
- Montrose Road/Randolph Road/East Randolph Road/Cherry Hill Road/ Powder Mill Road
- I-495 (the Capital Beltway)

A discussion of these four east-west principal routes is presented below:

Shady Grove Road/Muncaster Mill Road (MD 115)/Norbeck Road (MD 28)/ Spencerville Road (MD 198):

Shady Grove Road is a four-lane arterial that is often congested, and is identified in the CLRP for widening to six lanes. Muncaster Mill Road (MD 115) is a rural two-lane road with many vertical and horizontal curves that can create unsafe conditions with heavy traffic. On MD 28 at the intersection of MD 97, current conditions are extremely congested, and plans call for a grade separated interchange to be built to accommodate current and future traffic. MD 28 west of Layhill Road is extremely congested, with two lanes in each direction. Between Layhill Road and New Hampshire Avenue (MD 650), the recently constructed Norbeck Road Extended (MD 28/MD 198) is a two-to-four-lane road, and a planning study is underway to evaluate widening it all to four lanes. East of New Hampshire Avenue (MD 650), MD 198 is a congested two-lane road. This route has approximately 20 signalized intersections, 57 unsignalized intersections, and 438 driveways. A study is underway to address improvements to MD 28/MD 198 between MD 97 and I-95. The following intersection improvements are assumed to be operational in the future network. Please refer to the *ICC Travel Analysis Technical Report (SHA, 2004*) for a complete listing of highway and transit improvements included in the CLRP.

- MD 355/Shady Grove Road – add approach lanes
- MD 115/Shady Grove Road and Airpark Road – add approach lanes
- MD 115/Redland Road and Muncaster Road - add approach lane
- MD 28/MD 115 - add approach lanes
- MD 28/MD 97 – add grade separation
- MD 28/MD 182 - add approach lanes
- MD 182/Ednor Road and Norwood Road - add approach lanes
- MD 198/MD 650 - add approach lanes
- US 29/MD 198 - add grade separation
- MD 198/Bond Mill Road and Old Gunpowder Road - add approach lanes
- MD 198/Sweitzer Lane - add approach lanes

Montgomery Avenue/Norbeck Road (MD 28)/Bel Pre Road/Bonifant Road/Good Hope Road/Briggs Chaney Road:

During the rush hours and at other peak times, this route east of I-270 is extremely congested as it traverses through the City of Rockville. MD 28 (Norbeck Road) contains six lanes. The intersection of Norbeck Road with Veirs Mill Road (MD 586) is extremely congested and a study is underway to improve this intersection to a grade separated interchange. The intersection of Norbeck Road and Gude Drive is another heavily congested intersection. Bel Pre Road, a two-lane road, traverses a residential area and has speed bumps and parking along the road up to the intersection of Georgia Avenue. Bel Pre Road remains two lanes in each direction, but after the intersection of Layhill Road, it becomes Bonifant Road, which is a two-lane winding road with driveways along each side. The Briggs Chaney Road/US 29 intersection is very congested with developments such as auto dealerships and commercial and retail establishments at the intersection. The remainder of this route consists of two-lane roads without a direct interchange with I-95. The access to I-95 and US 1 is via Ammendale and Virginia Manor Roads, which are currently two lanes but are in the CLRP for widening to six lanes. This route has approximately 26 signalized intersections, 89 unsignalized intersections, and 521 driveways. The following intersection improvements are assumed to be operational in the future network. Please refer to the *ICC Travel Analysis Technical Report (SHA, 2004*) for a complete listing of highway and transit improvements included in the CLRP.

- MD 28/West Gude Drive - add approach lanes
- MD 97/Bel Pre Road - add approach lanes
- US 29/Briggs Chaney Road - add grade separation
- Old Gunpowder Road/Briggs Chaney Road - add approach lanes

Montrose Road/Randolph Road/East Randolph Road/Cherry Hill Road/ Powder Mill Road:

Montrose Road is extremely congested during the peak hours between I-270 and MD 355. Randolph Road is also very congested during the same time frames. Montrose Road, currently 2 lanes in each direction with a center turn lane, will be widened to six lanes (I-270 to Montrose Parkway) when Montrose Parkway is constructed. Montrose Parkway will relieve traffic on Montrose Road from its intersection with Montrose Road to MD 355. Randolph Road will be widened to include a center turn lane (5th lane) by the year 2015, as programmed in the region's CLRP. At the intersection of MD 97, Randolph Road experiences long traffic queues. Continuing to the east, Randolph Road is three lanes in each direction and operates fairly well, but the peak hours experience extreme congestion at the intersection of MD 650. Cherry Hill Road is a four-lane road between US 29 and Powder Mill Road, which has an interchange with I-95. Cherry Hill Road is included in the CLRP as being widened to five lanes. This route has approximately 35 signalized intersections, 53 unsignalized intersections, and 489 driveways. Montrose Parkway is a proposed new two to four lane county highway between I-270 and Veirs Mill Road and includes an upgrade of MD 355 at Montrose Road/Randolph Road and MARC/CSX Transportation Railroad Crossing intersection to a grade separated interchange. The following intersection improvements are assumed to be operational in the future network.

Please refer to *the ICC Travel Analysis Technical Report (SHA, 2004*) for a complete listing of highway and transit improvements included in the CLRP.

- MD 586/Randolph Road - add approach lanes

- MD 97/Randolph Road - add grade separation
- MD 355/Montrose Road/Randolph Road and MARC/CSX Transportation Railroad Crossing - add grade separation
- US 29/Randolph Road and Cherry Hill Road - add grade separation
- MD 212/Cherry Hill Road - add approach lanes

I-495 from I-270 to I-95 and US 1:

I-495 has reached its current capacity, and is congested most hours of the day. No improvements are assumed for this route, although the SHA is currently studying improvements to this highway facility, which could include widening and/or managed lanes.

In summary, the current transportation network, including planned improvements, lacks an access controlled east-west highway to connect the major interstates and arterials that are oriented north-south across the study area. Except for segments of Metrobus and local bus service on roads shared with conventional traffic, there is no east-west transit in the study area. There are no express transit connections within the study area between the north-south transit services in the I-270 and I-95 corridors. The current options for east-west travel are inadequate to connect those major transportation and development corridors. These routes include generally narrow winding roads that have geometric deficiencies with associated safety concerns, roads through residential areas and neighborhoods, significant intersection delays at peak times, navigational difficulty with the need to turn onto many different roads along the routes, and lack of direct connections to I-270 or I-95. The ICC project is a needed component of the regional network because it would provide an alternative to the local roadways that are designed for local traffic only.

c. Existing and Future Traffic Operations

The significant and increasing demand for east-west travel in the ICC study area can be shown with the use of screenlines, which are hypothetical north-south lines at intervals across the study area parallel to major routes in the study area. The traffic volumes on every road that crosses the screenline are added to yield the total traffic volume crossing it. For example, as shown in ***Figure I-3,*** the sum of the 2000 average daily traffic (ADT) on the roads crossing the screenline just east of I-270 is 706,000 vehicles. Future ADT is projected to increase 29 percent to 914,000 vehicles by 2030. This screenline shows the greatest percentage increase in ADTs from 2000 to 2030. The screenline with the smallest projected increase is west of MD 97, which shows a 2000 ADT of 472,000 and a 2030 ADT of 512,000 vehicles (an expected increase of 40,000 vehicles), which indicates an already high demand in this portion of the study area. Due to the current and future congested conditions on I-495, the Beltway would carry only a small percentage of the increased future traffic. These increases in screenline volumes indicate that the study area will experience continued increases in the demand for east-west travel, resulting in longer periods of congestion on existing routes. ***Table I-1*** lists the east-west traffic volumes by type of facility across each screenline as well as the percent change.

Table I-1
East-West Traffic Volumes by Type of Facility (1,000's)

Screenline	Facility	2000	2030 No-Action	Percent Change
A (I-270)	I-370	66	96	45
	Other Arterials	510	664	30
	Beltway	130	154	18
	TOTAL	706	914	29
B (MD 97/MD 185)	Other Arterials	228	261	14
	Beltway	244	251	3
	TOTAL	472	512	8
C (MD 182/MD 97)	Other Arterials	191	243	27
	Beltway	249	257	3
	TOTAL	440	500	14
D (US 29)	Other Arterials	155	209	35
	Beltway	249	257	3
	TOTAL	404	466	15
E (I-95)	Other Arterials	143	198	38
	Beltway	232	273	18
	TOTAL	375	471	26
F (US 1)	Other Arterials	106	121	14
	Beltway	236	276	17
	TOTAL	342	397	16

Local roads in the study area will experience a substantial increase in traffic between 2000 and 2030. ***Figure I-4*** shows those roads on which traffic is expected to increase between 25 and 50 percent (represented by the green lines) and those roads on which traffic is expected to increase by over 50 percent (represented by the orange lines). Please refer to *the ICC Travel Analysis Technical Report (SHA, 2004)* for a complete presentation of the traffic data. These are only a few of the roads expected to experience an increase in ADT of over 50 percent: Shady Grove Road immediately northeast of Frederick Road (MD 355); Falls Road; Norbeck Road (MD 28) between Georgia Avenue (MD 97) and New Hampshire Avenue (MD 650); and East Randolph Road between Randolph Road and I-95. The majority of the roads expected to experience the greatest percentage increase in ADT are in the middle and eastern portions of the study area.

The ICC is intended to provide additional roadway capacity in the study area to accommodate the future traffic growth and demand for east-west travel, particularly between the I-270 and I-95 development corridors. Increasing the region's roadway capacity with the ICC would also open up some capacity on the local road system to accommodate shorter trips.

d. Traffic Operations

As part of the travel demand modeling and evaluation process that was conducted for this study, both the current (Year 2000) Level of Service (LOS) and the anticipated LOS in 2030 (based upon projected traffic volumes) were computed at 51 key intersections in the study area. A full discussion of the methodology and assumptions used in this analysis are presented in the *ICC Travel Analysis Technical Report* (SHA, 2004). These intersections were selected with input from citizens and staff of both Montgomery and Prince George's Counties as representative of conditions on the more heavily traveled routes in the study area. The projected 2030 traffic volumes and the computed LOS assume the existing (2000) highway network plus the planned transportation improvements in the study area described earlier.

The LOS is a measure of the congestion experienced by drivers, and ranges from A (free flow with little or no congestion) to F (failure with stop-and-go conditions). The LOS is normally computed for the peak periods of a typical day, with LOS D (approaching unstable flow) or better generally considered acceptable for intersections or highways in urban and suburban areas. At LOS E, volumes are near or at capacity. Once an intersection passes over its theoretical capacity (i.e., a volume to capacity ratio (V/C) of 1.0), extensive delay begins. LOS F represents conditions in which demand exceeds capacity and in which there are operational breakdowns with stop-and-go traffic and extremely long delays at signalized intersections.

In recent years, traffic studies have shown that congestion levels with LOS F vary widely, so that some LOS F conditions are actually far worse than others. The LOS F rating is used for all traffic conditions where volume exceeds capacity, i.e., where the V/C ratio is greater than 1.0. In this context, the term capacity refers to the maximum amount of traffic that the roadway was intended to carry at any one time, with a certain level of delay; it is not the actual physical limit of the amount of traffic the roadway can handle. ***Table I-2*** describes three levels of congestion in terms of V/C ratios, including two levels within LOS F.

Table I-2
Intersection Operational Characteristics

LOS: V/C Ratio	Operating Conditions	Current Examples
LOS A-D: less than or equal to 0.9	• Many vehicles pass through intersection without stopping • Less than two minutes of delay per vehicle in peak direction • Congested for one hour or less each day	• MD 182/Bel Pre Rd and Bonifant Rd • MD 108/MD 650 • MD 650/Briggs Chaney Rd
LOS E/F: 0.9 to less than or equal to 1.2	• Most vehicles stop and wait through one signal cycle • Two to five minutes of delay per vehicle in peak direction • Congested for two to four hours each day	• MD 28/MD 586 • MD 28/MD 97 • MD 28/Bel Pre Road & Emory Lane • MD 97/Randolph Road • MD 97/Bel Pre Road • MD 185/Randolph Road • MD 355/Redland Rd
LOS F: greater than 1.2	• Most vehicles wait through multiple signal cycles • Five to 10 minutes of delay per vehicle in peak direction • Congested for four to six hours each day • Queues often block upstream intersections	• US 29/Briggs Chaney Rd • US 29/Randolph Rd and Cherry Hill Rd • US 29/Fairland Rd

On most arterials with signalized intersections, LOS is a measure of the intersection delays, whereas on highways with access control or long distances between signals, LOS is a measure of the travel lane flows and weaving, merging, and diverging characteristics. At interchanges, LOS is a function of the traffic delays on the ramps, and merge/diverge points. ***Figure I-5*** shows the locations of key at-grade intersections and future interchange ramp intersections in the study area that were analyzed under each alternative. In several instances (e.g., MD 28/MD 97, US 29/Briggs Chaney Road, US 29/MD 198, US 29/Randolph Road, and US 29/Fairland Road), at-grade interchanges are planned to be reconstructed as grade-separated interchanges by 2030. In other cases (e.g., I-95/Contee Road), the interchange does not exist today, but is planned to be in place by 2030. ***Table I-3*** and ***Table I-4*** list the LOS and V/C ratios for 2000 and 2030 No-Action at the 51 intersections analyzed within the study area for the AM and PM peak hours, respectively. All intersections with a LOS F and a V/C ratio greater than 1.00 are shown in bold. Intersections with planned geometric improvements under the 2030 No-Action condition are denoted with an asterisk in the tables. A planned project is one that has regional-significance based on its size and is listed in the CLRP or is expected to be in place by 2030, but is not required for identification in the CLRP. As noted above, the intersections at MD 28/MD 97, US 29/Briggs Chaney Road, US 29/MD 198, US 29/Randolph Road, and US 29/Fairland Road are each shown as two separate intersections in the future, representing both ramp terminal points of the future interchanges (northbound [NB] and southbound [SB]). The LOS and V/C shown for

the existing conditions actually represent the single at-grade intersections that exist today. This information is also illustrated graphically in ***Figure I-6*** and ***Figure I-7***.

Table I-3
Intersection Analyses AM Peak Hour Existing and 2030 No-Action

No.	Intersection	Peak Period	Existing		2030 No-Action	
			LOS	V/C	LOS	V/C
1	MD 28 / West Gude Drive*	AM	D	0.86	**F**	**1.07**
2	MD 28 / MD 586	AM	E	1.00	**F**	**1.26**
3	MD 28 / MD 115*	AM	C	0.75	D	0.82
4	MD 28 / SB MD 97*	AM	F	1.12	A	0.62
5	MD 28 / NB MD 97*	AM	F	1.12	B	0.68
6	MD 28 / MD 182*	AM	A	0.46	D	0.90
7	MD 28 / Bel Pre Road & Emory Lane	AM	F	1.10	**F**	**1.38**
8	US 29 SB / Briggs Chaney Road*	AM	F	1.34	B	0.65
9	US 29 NB / Briggs Chaney Road*	AM	F	1.34	B	0.69
10	SB US 29 / MD 198*	AM	F	1.10	E	0.98
11	NB US 29 / MD 198*	AM	F	1.10	D	0.85
12	US 29 SB/ Randolph Road*	AM	F	1.31	**F**	**1.15**
13	US 29 NB/ Randolph Road*	AM	F	1.31	**F**	**1.06**
14	US 29 SB/ Fairland Road*	AM	F	1.28	C	0.74
15	US 29 NB/ Fairland Road*	AM	F	1.28	B	0.69
16	MD 97 / Randolph Road*	AM	F	1.10	**F**	**1.03**
17	MD 97 / MD 108	AM	D	0.82	E	0.95
18	MD 97 / Bel Pre Road*	AM	F	1.03	**F**	**1.21**
19	MD 108 / MD 650	AM	C	0.80	**F**	**1.02**
20	MD 115 / Shady Grove Road & Airpark Road*	AM	D	0.83	**F**	**1.11**
21	MD 115 / Redland Road & Muncaster Mill Road*	AM	E	0.94	E	0.92
22	MD 182 / Bel Pre Road & Bonifant Road	AM	C	0.76	E	0.94
23	MD 182 / Ednor Road & Norwood Road*	AM	F	1.07	**F**	**1.39**

Table I-3
Intersection Analyses AM Peak Hour Existing and 2030 No-Action

No.	Intersection	Peak Period	Existing		2030 No-Action	
			LOS	V/C	LOS	V/C
24	MD 185 / Randolph Road	AM	F	1.11	**F**	**1.47**
25	MD 198 / MD 650*	AM	B	0.63	**F**	**1.24**
26	MD 355 / Shady Grove Road*	AM	F	1.03	**F**	**1.30**
27	MD 355 / Redland Road	AM	F	1.01	**F**	**1.17**
28	MD 586 / Randolph Road*	AM	F	1.02	E	0.92
29	MD 650 / Randolph Road	AM	F	1.11	**F**	**1.61**
30	MD 650 / Bonifant Road & Good Hope Road	AM	E	0.94	**F**	**1.26**
31	MD 650 / Ednor Road*	AM	C	0.76	E	0.92
32	Shady Grove Road / Midcounty Highway	AM	E	0.92	**F**	**1.29**
33	US 1 / Muirkirk Meadows Drive*	AM	B	0.68	B	0.63
34	US 1 / Contee Road*	AM	D	0.86	D	0.83
35	US 1 / Ritz Way*	AM	B	0.71	**F**	**1.15**
36	MD 198 / Bond Mill Road & Old Gunpowder Road*	AM	B	0.65	A	0.55
37	MD 197 / MD 198 & Irving Drive	AM	B	0.66	C	0.74
38	US 1 NB / MD 198 WB*	AM	C	0.72	**F**	**1.01**
39	US 1 SB / MD 198 WB*	AM	C	0.78	**F**	**1.00**
40	US 1 SB / MD 198 EB*	AM	C	0.76	D	0.85
41	US 1 NB / MD 198 EB*	AM	B	0.63	A	0.61
42	MD 198 / Van Dusen Road*	AM	D	0.84	**F**	**1.00**
43	MD 212 / Cherry Hill Road*	AM	E	0.69	D	0.82
44	US 1 / MD 212*	AM	E	0.92	E	0.99
45	Virginia Manor Road / Van Dusen Road*	AM	B	0.72	C	0.77
46	I-95 SB and Contee Road*	AM	n/a	n/a	D	0.89
47	I-95 NB and Contee Road*	AM	n/a	n/a	A	0.37

Table I-3

Intersection Analyses AM Peak Hour Existing and 2030 No-Action

No.	Intersection	Peak Period	Existing		2030 No-Action	
			LOS	V/C	LOS	V/C
48	Old Gunpowder Road / Briggs Chaney Road*	AM	A	0.53	C	0.72
49	MD 198 / Sweitzer Lane*	AM	B	0.68	D	0.84
50	MD 650 / Briggs Chaney Road	AM	A	0.49	D	0.84
51	MD 650 / Norwood Road	AM	A	0.55	D	0.86

Note: * Denotes those intersections where planned geometric improvements have been assumed to be in place by 2030.

Table I-4

Intersection Analyses PM Peak Hour Existing and 2030 No-Action

No.	Intersection	Peak Period	Existing		2030 No- Action	
			LOS	V/C	LOS	V/C
1	MD 28 / West Gude Drive*	PM	E	0.92	E	0.94
2	MD 28 / MD 586	PM	F	1.13	**F**	**1.29**
3	MD 28 / MD 115*	PM	C	0.77	D	0.83
4	MD 28 / SB MD 97*	PM	F	1.06	C	0.76
5	MD 28 / NB MD 97*	PM	F	1.06	D	0.90
6	MD 28 / MD 182*	PM	A	0.55	E	0.96
7	MD 28 / Bel Pre Road & Emory Lane	PM	E	0.99	**F**	**1.26**
8	US 29 SB / Briggs Chaney Road*	PM	F	1.30	C	0.75
9	US 29 NB / Briggs Chaney Road*	PM	F	1.30a	D	0.87
10	SB US 29 / MD 198*	PM	F	1.03	**F**	**1.13**
11	NB US 29 / MD 198*	PM	F	1.03	D	0.86
12	US 29 SB/ Randolph Road*	PM	F	1.25	E	0.93
13	US 29 NB/ Randolph Road*	PM	F	1.25	E	0.94
14	US 29 SB/ Fairland Road*	PM	F	1.33	A	0.62
15	US 29 NB/ Fairland Road*	PM	F	1.33	B	0.71
16	MD 97 / Randolph Road*	PM	F	1.05	D	0.88
17	MD 97 / MD 108	PM	E	0.91	**F**	**1.04**
18	MD 97 / Bel Pre Road*	PM	F	1.02	**F**	**1.10**
19	MD 108 / MD 650	PM	B	0.7	E	0.91
20	MD 115 / Shady Grove Road & Airpark Road*	PM	C	0.76	C	0.81
21	MD 115 / Redland Road & Muncaster Mill Road*	PM	E	0.99	**F**	**1.48**
22	MD 182 / Bel Pre Road & Bonifant Road	PM	C	0.77	**F**	**1.14**
23	MD 182 / Ednor Road & Norwood Road*	PM	F	1.08	**F**	**1.27**

Table I-4
Intersection Analyses PM Peak Hour Existing and 2030 No-Action

No.	Intersection	Peak Period	Existing		2030 No- Action	
			LOS	V/C	LOS	V/C
24	MD 185 / Randolph Road	PM	F	1.01	**F**	**1.35**
25	MD 198 / MD 650*	PM	A	0.55	**F**	**1.15**
26	MD 355 / Shady Grove Road*	PM	F	1.14	**F**	**1.26**
27	MD 355 / Redland Road	PM	F	1.01	**F**	**1.15**
28	MD 586 / Randolph Road*	PM	F	1.12	**F**	**1.14**
29	MD 650 / Randolph Road	PM	F	1.02	**F**	**1.53**
30	MD 650 / Bonifant Road & Good Hope Road	PM	C	0.76	**F**	**1.03**
31	MD 650 / Ednor Road*	PM	C	0.78	**F**	**1.03**
32	Shady Grove Road / Midcounty Highway*	PM	F	1.00	**F**	**1.17**
33	US 1 / Muirkirk Meadows Drive*	PM	D	0.86	D	0.85
34	US 1 / Contee Road*	PM	D	0.9	E	0.95
35	US 1 / Ritz Way*	PM	C	0.79	E	0.96
36	MD 198 / Bond Mill Road & Old Gunpowder Road	PM	C	0.73	B	0.71
37	MD 197 / MD 198 & Irving Drive*	PM	B	0.65	D	0.83
38	US 1 NB / MD 198 WB*	PM	E	0.98	**F**	**1.13**
39	US 1 SB / MD 198 WB*	PM	D	0.84	**F**	**1.10**
40	US 1 SB / MD 198 EB*	PM	D	0.86	E	0.94
41	US 1 NB / MD 198 EB*	PM	F	1.09	E	0.98
42	MD 198 / Van Dusen Road*	PM	F	1.08	**F**	**1.48**
43	MD 212 / Cherry Hill Road*	PM	C	0.81	E	0.94
44	US 1 / MD 212	PM	E	0.91	E	0.99
45	Virginia Manor Road / Van Dusen Road*	PM	E	0.91	E	0.98
46	I-95 SB and Contee Road*	PM	n/a	n/a	A	0.61
47	I-95 NB and Contee Road*	PM	n/a	n/a	A	0.38

Table I-4
Intersection Analyses PM Peak Hour Existing and 2030 No-Action

No.	Intersection	Peak Period	Existing		2030 No- Action	
			LOS	V/C	LOS	V/C
48	Old Gunpowder Road / Briggs Chaney Road*	PM	A	0.61	C	0.75
49	MD 198 / Sweitzer Lane*	PM	D	0.9	**F**	**1.02**
50	MD 650 / Briggs Chaney Road	PM	A	0.62	**F**	**1.03**
51	MD 650 / Norwood Road	PM	C	0.73	E	0.95

Note: * Denotes those intersections where planned geometric improvements have been assumed to be in place by 2030.

Currently, three of the intersections (US 29/Briggs Chaney Road, US 29/Randolph Road, and US 29/Fairland Road) have a V/C ratio of 1.2 or greater in the AM peak period. That number is expected to increase to 10 intersections by 2030. During the PM peak period the same three intersections currently experience V/C ratios of 1.2 or higher (US 29/Briggs Chaney Road, US 29/Randolph Road, and US 29/Fairland Road). That number is expected to increase to eight intersections in 2030. For example, in ***Figure I-6,*** the intersection of Randolph Road and MD 650 operates at LOS F (V/C = 1.11) currently, and is expected to operate at LOS F (V/C = 1.61) in 2030. Several intersections within the study area are programmed for conversion to grade separated interchanges by 2030. These intersections are noted in ***Figures I-6*** and ***I-7*** by the dotted lines leading to the LOS label. For example, in the AM peak period, the intersection of Randolph Road and US 29 is currently signalized and the LOS in 2000 is LOS F (V/C = 1.31). However, in 2030, the intersection will be rebuilt as an interchange and the LOS is shown at the locations where each exit ramp will terminate (V/C = 1.15 SB and 1.06 NB). For southbound traffic on US 29 exiting to travel west on Randolph Road, the LOS is projected to be LOS F, and the same is true at the exit ramp for northbound US 29 to eastbound Randolph Road.

The LOS has been calculated along 52 highway links within the study area. ***Table I-5*** presents the highway LOS results for both 2000 and 2030 No-Action conditions. A full listing of the traffic data for these links is presented in the *ICC Travel Analysis Technical Report* (SHA, 2004) prepared for this project. As shown in ***Table I-5***, even if all planned improvements other than the ICC are made, there are 27 highway sections that are projected to have a worse LOS under the 2030 No-Action Alternative in either of the peak hours, as compared to 2000 LOS conditions. In terms of future No-Action conditions, there are 32 highway sections that will be operating at LOS E or LOS F during the peak hours. For example, almost all of the Capital Beltway (I-495) sections are projected to operate at LOS E or F under the 2030 No-Action Alternative. The data shows that the study area is already very congested, and will continue to be a highly congested and highly traveled region even with other significant improvements.

Table I-5
Highway LOS 2000 and 2030 No-Action

Roadway Segment	From	To	2000		2030 No-Action	
			AM	PM	AM	PM
I-270-NB -Main Line	Shady Grove Rd	I-370	B	C	C	C
I-270-SB -Main Line	I-370	Shady Grove Rd	D	C	D	D
I-270-NB –CD	Shady Grove Rd	I-370	B	F	C	E
I-270-SB –CD	I-370	Shady Grove Rd	F	B	F	C
I-270-NB -Main Line	MD 28	Shady Grove Rd	C	D	D	D
I-270-SB -Main Line	Shady Grove Rd	MD 28	E	C	E	E
I-270-NB –CD	MD 28	Shady Grove Rd	B	E	C	D
I-270-SB –CD	Shady Grove Rd	MD 28	D	B	D	C
I-270-NB –Main Line	MD 189	MD 28	C	D	E	D
I-270-SB –Main Line	MD 28	MD 189	E	C	E	E
I-270-NB –CD	MD 189	MD 28	C	E	D	D
I-270-SB –CD	MD 28	MD 189	D	C	D	D
I-270-NB–Main Line	Montrose Rd	MD 189	C	D	D	D
I-270-SB–Main Line	MD 189	Montrose Rd	E	C	D	D
I-270-NB -CD	Montrose Rd	MD 189	C	F	C	D
I-270-SB -CD	MD 189	Montrose Rd	D	C	D	C
I-270-NB	Tuckerman	Montrose Rd	C	E	F	F
I-270-SB	Montrose Rd	Tuckerman	E	C	F	F
I-270-EB	I-270 Spur	MD 187	E	C	D	C
I-270-WB	MD 187	I-270 Spur	C	F	C	E
I-270-EB	MD 187	MD 355	E	C	D	C
I-270-WB	MD 355	MD 187	C	E	C	E
I-95-NB -Main Line	MD 198	MD 216	C	F	C	E
I-95-SB -Main Line	MD 216	MD 198	F	D	F	D
I-95-NB -CD	MD 198	MD 216	NA	NA	B	D
I-95-SB -CD	MD 216	MD 198	NA	NA	D	C
I-95-NB -Main Line	MD 198	Contee Rd	C	F	C	E
I-95-SB -Main Line	Contee Rd	MD 198	F	D	F	D
I-95-NB -CD	MD 198	Contee Rd	NA	NA	B	C
I-95-SB -CD	Contee Rd	MD 198	NA	NA	D	C
I-95-NB -Main Line	MD 212	Contee Rd	C	F	C	F
I-95-SB -Main Line	Contee Rd	MD 212	F	D	F	D
I-95-NB -CD	MD 212	Contee Rd	NA	NA	B	D
I-95-SB -CD	Contee Rd	MD 212	NA	NA	D	C
I-95-NB	I-495	MD 212	C	E	D	F
I-95-SB	MD 212	I-495	E	D	F	E
I-495-EB (Inner Loop)	MD 355	MD 185	F	F	F	F
I-495-WB (Outer Loop)	MD 185	MD 355	F	F	F	F
I-495-EB (Inner Loop)	MD 185	MD 97	F	F	F	F
I-495-WB (Outer Loop)	MD 97	MD 185	F	F	F	F
I-495-EB (Inner Loop)	MD 97	US 29	E	F	F	F
I-495-WB (Outer Loop)	US 29	MD 97	F	E	F	F
I-495-EB (Inner Loop)	US 29	MD 193	E	F	F	F
I-495-WB (Outer Loop)	MD 193	US 29	F	E	F	E

Table I-5
Highway LOS 2000 and 2030 No-Action

Roadway Segment	From	To	2000		2030 No-Action	
			AM	PM	AM	PM
I-495-EB (Inner Loop)	MD 193	MD 650	E	F	E	F
I-495-WB (Outer Loop)	MD 650	MD 193	D	D	E	E
I-495-EB (Inner Loop)	MD 650	I-95	D	D	E	F
I-495-WB (Outer Loop)	I-95	MD 650	D	C	E	D
I-495-EB (Inner Loop)- Main Line	I-95	US 1	E	D	F	F
I-495-WB (Outer Loop)	US 1	I-95	C	D	D	D
I-95-NB	MD 201	US 1	E	E	F	F
I-95-SB	MD 201	US 1	F	E	F	F

The increasing levels of congestion on the roadways within the study area, demonstrated by the LOS analyses, will result in significant increases in travel time for east-west travel. For example, peak period travel times between Rockville and points to the east, such as Laurel and BWI Thurgood Marshall Airport, are projected to increase by approximately 50 percent. In 2000, a trip from Rockville to BWI Thurgood Marshall Airport took approximately 70 minutes during the morning peak period; whereas in 2030, the same trip is projected to take 100 minutes, an increase of 43 percent. Likewise, the hours at which the intersections operate over capacity will increase dramatically. In the year 2030, with the No-Action Alternative, the combined number of hours at or over capacity of the intersections analyzed will approximately double. This is illustrated in ***Figure I-8***, which lists for each of the intersections evaluated for this study, the number of hours that an intersection is at its capacity. Some intersections, such as the intersection of Randolph Road and MD 650, the intersection of Norbeck Road (MD 28) and Bel Pre Road, and the intersection of MD 97 and Bel Pre Road, will experience a dramatic increase in the number of hours that they experience LOS F in a 24-hour period.

e. Accident Analysis

Highways with modern design features and characteristics, such as full access control and divided roadways, normally have lower crash rates than roads that have direct local road and driveway access, such as arterial and collector roadways. For example, the statewide average crash rate for highways with full access controls is approximately one-quarter the rate for arterials (without access controls). Crash rates are expressed in number of crashes per 100 million vehicle miles (MVM).

The ICC study team analyzed historical crash data for the years 2000 through 2003 on the roadways in the study area to determine crash rates for these roadways. The crash data was developed by the SHA's Office of Traffic and Safety using its Maryland Automated Accident Reporting System (MAARS). The computed crash rates were then compared to statewide average crash rates considering roadway type to identify study area roadways that have exhibited a higher crash rate than the statewide average. The weighted overall crash rate for the study area roadway network was one percent higher than the statewide weighted average (180.4 crashes per 100 MVM compared to 178.4 crashes per 100 MVM); and there are a number of individual

roadways that have exhibited a higher than average crash rate. These rates are shown in ***Table I-6***. The roadways with higher than average crash rates are shown in bold text. ***Figure I-9*** also shows those study area roadways that have a higher crash rate than the statewide average. Three roadways in the study area, Diamond Avenue, Good Hope Road, and Montrose Road show significantly (i.e., greater than 165 percent of the statewide average) higher crash rates than the statewide average. Fourteen additional roadways show higher crash rates than the statewide average.

2. Economic Centers

The construction of the ICC is important in terms of providing a direct link between the manufacturing and research and development activities in the I-270 Corridor with the markets and suppliers in the I-95/Baltimore-New York corridor and with the facilities at BWI Thurgood Marshall Airport.

The ICC study area transportation network serves numerous activity centers that contain various economic attractors. Examples of regional activity centers include Rock Spring Park, Rockville Town Center, Twinbrook, White Flint, US 1/Green Line Metro, White Oak, Konterra, Gaithersburg/Life Sciences Center, National Institute of Standards and Technology, and Germantown/Clarksburg. Examples of specific economic attractors such as Metrorail stations, regional shopping centers, community college campuses, and hospitals, include Westfield Montgomery Mall, Lakeforest Mall, Laurel Centre, White Flint Mall, Westfield Wheaton Plaza, Montgomery College Germantown, Montgomery College Rockville, Shady Grove Adventist Hospital, Montgomery General Hospital, Laurel Hospital, Shady Grove Metrorail station, Rockville Metrorail station, Glenmont Metrorail station, and Greenbelt Metrorail station. ***Figure I-10*** shows several of these activity centers as well as the Montgomery and Prince George's County planning areas.

Montgomery County and Prince George's County account for the largest percentages of the State's available workforce (17 percent and 16 percent, respectively), followed closely by Baltimore County. The I-270 Corridor stretches from Bethesda into Frederick County and is a vital component of the State's economy. Named the I-270 Technology Corridor, it continues to be a focal point for major commercial as well as residential development. The City of Gaithersburg and the City of Rockville are major employment and housing centers located along the I-270 Corridor in the ICC study area, offering a mixture of office, retail, and service industry jobs.

Table I-6
2000-2002 Crash Rates (Crashes per 100 MVM)

Roadway Segment	Road-Specific Rates (from 2000-2002 Crash Data)	Statewide Rates by Road Type from Crash Tables*
Bel Pre Road	211.4	332.0
Bonifant Road	93.0	183.1
Briggs Chaney Road	156.8	183.1
Cherry Hill Road	224.3	332.0
Diamond Avenue	**712.6**	**332.0**
Ednor Road	155.9	183.1
Fairland Road	192.8	332.0
Good Hope Road	**438.6**	**183.1**
Gude Drive	129.2	252.8
I-95	53.6	53.1
MD 108	153.6	158.2
MD 115	**209.4**	**195.7**
MD 182	153.6	227.2
MD 185	**190.9**	**166.9**
MD 198	**224.9**	**188.0**
MD 28	**208.4**	**185.2**
MD 355	**298.8**	**253.8**
MD 650	141.0	198.2
MD 97	**227.2**	**206.2**
Mid-County Highway	77.6	252.8
Montrose Road	**1394.4**	**252.8**
Randolph Road	**377.2**	**252.8**
Redland Road	**261.5**	**183.1**
Shady Grove Road	**356.7**	**252.8**
US 1	**332.8**	**331.8**
US 29	125.3	181.5
Veirs Mill Road	**284.3**	**252.8**
Contee Road	**341.1**	**332.0**
MD 212	**279.3**	**183.1**
Muirkirk Road	116.1	183.1
Old Gunpowder Road	136.3	332.0
Van Dusen Road	**204.7**	**183.1**
Virginia Manor Lane	103.1	183.1

* Since some roads change classification, a weighted average was derived from the standard rate tables.

The corridors of I-270, I-95, and US 29 are expected to experience significant economic growth over the next few years as the result of promoting the concentration of development in these areas. Representative employers within the study area in Montgomery County, with 1,000 to 3,000 employees each, include:

- Holy Cross Health (Silver Spring)
- Marriott Corp. (North Bethesda)
- Lockheed Martin Mission Systems (Gaithersburg)
- National Institute of Standards and Technology (Gaithersburg)
- Montgomery General Hospital (Olney)
- Montgomery Auto Sales Park (North Silver Spring)
- Montgomery Industrial Park (North Silver Spring)
- West Farm Technology Park (North Silver Spring)
- Federal Research Center at White Oak, which is being consolidated by the Food and Drug Administration (FDA) (a small portion of this complex is located in Prince George's County)

In addition, the *1990 Prince George's County Subregion I General Plan* identifies eight employment areas within the study area that are projected to employ between 2,500 and 17,000 workers at each employment center. Major employment centers within the study area in Prince George's County include:

- Beltsville Agricultural Research Center
- Beltsville Industrial Park
- FDA-Beltsville Research Complex
- Greater Laurel Professional Park
- Ammendale Business campus
- Konterra Business campus
- HIG Corporation
- Park Place

Freight movements and service industry providers in Montgomery and Prince George's Counties, as well as the surrounding areas, must rely on heavily congested routes to make pick-ups and deliveries and complete service calls. Major shippers in critical industries with locations in the study area, such as E.I. Kane, SYSCO, Terminal Corporation, Marjack, FedEx, and UPS, have expressed through interviews conducted by the University of Maryland for the ICC that savings in travel time, fuel costs, labor costs, and costs related to vehicle wear and tear are critical to their continued business operations (*Economic Impact Study of the Intercounty Connector, Maryland Transportation Initiative, University of Maryland, 2004*).

Without an ICC, the only east-west access-controlled highway in the study area that connects the I-270 and I-95/US 1 corridors is the Capital Beltway (I-495), which forms the southern boundary of the study area, running from Beltsville to Silver Spring to Bethesda. In addition, there are a limited number of arterial routes to accommodate the demand for east-west travel. As shown in the travel analysis in this section, congestion is mounting along these routes and will continue to

mount. As the congestion at intersections increases, the delay at these intersections also increases. The delay results in extended travel times between economic and activity centers, which negatively impacts the movement of goods and people to and from these centers.

For example, a trip from Colesville to BWI Thurgood Marshall Airport, which is approximately 25 miles, would take about 81 minutes in 2030 without an ICC. Increased travel time delays in the study area have the likely potential to thwart planned economic growth along the I-270 and I-95 interstate corridors.

3. Land Use and Master Plans

Both State legislation and the local land use planning process guide development patterns in the study area. In 1997, the Maryland General Assembly adopted legislation, commonly known as the Smart Growth Initiatives, aimed at slowing sprawl development in Maryland. The legislature was concerned that if previous development patterns had continued, an estimated 500,000 acres of Maryland's open space and farmland could disappear within two decades. The Smart Growth law targets State spending on roads, transit, sewers, schools, and other public infrastructure in designated growth areas or priority funding areas (PFAs). These areas include the land within the Baltimore and Washington beltways, established towns, cities, and rural villages, other existing and proposed communities above a minimum density, and industrial and employment areas. The State will funnel significant dollars into these PFAs. While development may still occur outside the growth areas, no State funds can be used to support those efforts. The intention is to remove major financial support for sprawl pattern development. Companion legislation, titled Rural Legacy, authorizes the use of State funds to preserve certain lands in areas vulnerable to development.

Pursuant to the Council on Environmental Quality (CEQ) regulations at 40 CFR1502.16(c), a discussion of possible conflicts between the proposed action and the objectives of Federal, regional, State and local land use plans, policies and controls for the area concerned is required. Because this action will trigger Federal regulations and permit programs, it is essential that this EIS review those programs in context with existing and proposed land use plans.

At the local level, both Montgomery and Prince George's Counties, through The Maryland-National Capital Park and Planning Commission (M-NCPPC), have rigorous planning and growth management systems. The M-NCPPC is a bi-county agency empowered by the State of Maryland in 1927 to acquire, develop, maintain, and administer a regional system of parks within Montgomery and Prince George's Counties, and to prepare and administer a general plan for the physical development of the two counties. A key planning responsibility is to balance land use and transportation.

Using "*On Wedges and Corridors, a General Plan for the Maryland-Washington Regional District*" (M-NCPPC, 1964) as a guide for Montgomery and Prince George's Counties, the County Planning Boards of M-NCPPC create local master plans and sector plans to set forth the vision of future land use and development for the two Counties. Once approved by the appropriate County Council and adopted by the M-NCPPC, Master Plans and Sector Plans are incorporated into and amend the General Plan. The plans are then implemented through zoning,

subdivision regulation, adequate public facility ordinances, growth management controls, farmland preservation easements, and capital improvement programs. The M-NCPPC planning, parks, and regulatory processes are nationally renowned and were the basis for the Maryland Smart Growth Initiatives.

The ICC has been an element of the Counties' master plans for 40 years. This proposed east-west highway is a key element of the plans, and particularly of Montgomery County's plans. The plan for an ICC is shown in ***Figure S-1***, which illustrates the location of the ICC in relation to existing development and stream valley park resources.

The study area includes places that are governed by the following M-NCPPC community master plans:

- Gaithersburg Vicinity Master Plan (2004 Draft, last approved and adopted version 1985)
- Shady Grove Sector Plan (Planning Board Draft 2004, last approved and adopted version 1977)
- Upper Rock Creek Area Master Plan (Approved and Adopted 2004)
- Olney Master Plan (Approved and Adopted 2005)
- Kensington-Wheaton Master Plan (Approved and Adopted 1989)
- Sandy Spring/Ashton Master Plan (Approved and Adopted 1998)
- Aspen Hill Master Plan (Approved and Adopted 1994)
- White Oak Master Plan (Approved and Adopted 1997)
- Cloverly Master Plan (Approved and Adopted 1997)
- Fairland Master Plan (Approved and Adopted 1997)
- Subregion 1 Master Plan (1990)
    - Fairland/Beltsville and Vicinity
    - Northwestern Area
    - South Laurel Montpelier

a. The General Plan and Montgomery County

The original 1964 *General Plan*, updated by M-NCPPC in 1993 and referred to as the General Plan Refinement, serves as a comprehensive guide to Montgomery County's land uses for the next 20 years. Years before the principles of Smart Growth were adopted by states, counties, and municipalities around the country, the planners and leaders in Montgomery and Prince George's Counties adopted a general plan that, in its basic form, represents the concepts of Smart Growth. The M-NCPPC developed the Plan with land use, transportation, environment, employment, housing, community identity and design, and regionalism elements. The General Plan envisions a development concept of "wedges and corridors," as shown on ***Figure S-2***, dividing Montgomery County into four geographic components: the Urban Ring, the I-270 Corridor, the Suburban Communities, and the Wedges (low-density agricultural and large-lot residential areas).

The "corridors" portion of this concept represents concentrations of development along major transportation spines or "corridors" that radiate out from the District of Columbia. For

Montgomery County, these transportation corridors include I-270 and US 29 insofar as it relates to the I-95 corridor to the east.

Green "wedges" are the non-urban spaces between the corridors reserved for predominantly low-density and rural-type development, except for certain "satellite" towns such as Damascus and Olney. In the green wedges, Montgomery County has successfully preserved a viable agricultural preserve in its western and northern areas, primarily through effective planning, zoning, and the nationally renowned Transfer of Development Rights (TDR) program, covering one-third of the County.

The General Plan Refinement also addresses the role of transportation in meeting the County's land use and other goals. One of the transportation objectives is to develop an interconnected transportation system that provides choices in the modes and routes of travel, specifically giving priority to improving east-west travel.

Master plans play an important role in the lives of the Counties' residents. For example, Montgomery County law for 30 years has required that prospective homebuyers must be informed that a master plan for their area exists and that they have the right to inspect the pertinent master plan. Reviewing the master plan or sector plan helps homebuyers know the future land uses that are recommended and anticipated for the area for the next 10-20 years. These plans also focus on the need for and challenges of planning for neighborhood stability and identity in older, fully developed communities that have little new development potential ("Resident's Guide to Land Use and Master Planning in Montgomery County" http://www.mc-mncppc.org /info/resident_guides/ master_planning/intro.shtm).

b. The General Plan and Prince George's County

The General Plan in Prince George's County was updated by M-NCPPC in 2002. The central concept of the Plan is a three-tier land use system with seven corridors and twenty-six centers for development (see ***Figure S-2***). The three tiers are Developed, Developing, and Rural. The Developed Tier generally extends from the Washington, D.C. border to the Beltway. The Developing Tier extends out from the Developed Tier in a radius of about seven miles, with the Rural Tier concentrated in the southern and eastern portions of the County. The General Plan does not govern the City of Laurel, which prepares its plan independently. Approximately one third of the County is in the Rural Tier, which is concentrated in the southern and eastern portions of the County. The portion of the ICC study area located within the County is both developed and developing.

The *Subregion I* Master Plan, adopted in 1990 remains the guiding document for land use in the northwestern portion of the County. The General Plan and the Subregion I Plan both project mixed use, high-density development in the area between I-95 and US 1.

Based on the visions of the Counties' general plans and relying on the specific land use, zoning, transportation, environment, and public facilities identified in local area master plans, an east-west multi-modal highway is called for to service existing development and future growth as planned in designated portions of the study area.

4. Natural, Community, and Cultural Environmental Stewardship

Although not traditionally addressed as part of the purpose of a transportation improvement, a goal of the ICC project is to enhance and restore the natural, community, and cultural environments that have been negatively affected by *past* development in the study area. This environmental stewardship goal is in addition to the traditional avoidance, minimization, and mitigation of impacts to environmental resources potentially resulting from the proposed transportation improvement. Examples of currently deteriorating natural environmental conditions include poor water quality associated with sediment input from stream bank erosion and inadequate riparian buffers, depleted forested and wetland areas, toxic inputs into streams from industrial waste, inadequate stormwater management in neighborhoods, and thermal impacts to coldwater fisheries in the upper and lower Paint Branch. Examples of community and cultural environmental needs include lack of adequate pedestrian and bicycle trails, deteriorating historic structures, and promotion of interest in cultural resources. Some specific examples are provided below to illustrate the locations of opportunities identified that can be enhanced and restored to meet the natural environmental degradation and community and cultural needs in the study area (A full discussion of Environmental Stewardship can be found in the *ICC Environmental Stewardship Technical Memorandum, I-270 to US 1* (SHA, 2004) developed for this study:

- **Example of the need to add sidewalks and paved shoulders: Old Gunpowder Road (from MD 198 to Greencastle Road), shown in photo, Prince George's County.** Pedestrian and bicycle facilities would improve the visual appeal and access to the Fairland Recreational Park that includes the Fairland Sports and Aquatics Center.

- **Example of the need to rehabilitate historic structures: Woodlawn Barn Historic Interpretive Center (79.8-acre Woodlawn Cultural Special Park grounds located at the corner of Norwood and Ednor Roads in Sandy Spring), Montgomery County.** The Woodlawn Barn, shown in the photo, is a unique three-story stone arch and timber frame bank barn dating back to 1832. It was constructed by master stonemason Isaac Holland and possesses high artistic value. The Department of the Interior selected the structure in the 1930s for the elite Historic American Building Survey. M-NCPPC has recommended that the barn be rehabilitated

as a visitor center to serve as a trailhead for the Rural Legacy Trail and a gateway to historic Sandy Spring.

- **Example of the need to restore fish passage in study area waters: Utility Crossing Fish Blockage in Little Paint Branch, Prince George's County.** Currently, as seen in the photo, there are multiple exposed utility crossings that block fish passage on Little Paint Branch north of I-95. Additionally, high streambanks are actively eroding and contributing sediment that potentially affect downstream water quality. Improvements such as fish passage restoration, aquatic habitat enhancement, and streambank stabilization could improve this area.

- **Example of the need to reduce bank erosion, sedimentation, and toxins from study area waters: Indian Creek Stream Erosion and Beltsville Industrial Park Stormwater Runoff, (east of US 1 in Beltsville in the vicinity of East Maple Avenue and Powder Mill Road), Prince George's County.** The stream in this area consists of channelized natural, concrete-lined, and gabion-lined reaches. As a result of the channelization, the stream is disconnected from its floodplain and highly erosive flows are contained within the channel. The Beltsville Industrial Park is located in the floodplain of Indian Creek near East Maple Avenue and a flood berm is located in the floodplain near Powder Mill Road. Stormwater runoff from the Beltsville Industrial Park is not treated with stormwater management, and therefore, is discharged directly to Indian Creek. Environmental Stewardship measures to reclaim, rehabilitate, and restore this area would improve water quality, decrease erosion, and increase erosive energy dissipation throughout this reach of Indian Creek.

MDOT is committed to implementing environmental stewardship measures in the study area to improve areas of need identified through agency and public input. Therefore, environmental stewardship is an integral part of the development of alternatives to address the ICC Purpose and Need.

5. Homeland Security/Emergency Response

There are numerous local, State, and Federal government installations, facilities, and services in and around the study area that must have high quality east-west travel to protect citizens in the case of an emergency either for widespread evacuation or response efforts in the National Capital area. No such facility exists today. The MDOT and the Metropolitan Washington Council of Governments (MWCOG) have identified a need to increase mobility in this highly populated, highly developed area and to create additional routes to assist in emergency response situations. The MWCOG adopted the Regional Emergency Coordination Plan (RECP[SM]) on September 11, 2002 (updated March 2004). The RECP[SM] includes a Regional Emergency Support Function (R-ESF) #1 Transportation chapter, as well as a Regional Emergency Evacuation Transportation Coordination (REETC) Annex. R-ESF #1 and the REETC Annex address regional emergency transportation issues, with the R-ESF #1 having an overall perspective, while the REETC Annex focuses particularly on transportation coordination during a major emergency involving evacuations or other protective actions. A new update of the REETC Annex was undertaken from April 2003 to March 2004 (*Regional Emergency Coordination Plan, Metropolitan Washington Council of Governments, March 2004*).

MDOT, through its Office of Engineering, Procurement and Emergency Services, has noted that the biggest bottlenecks during an emergency evacuation or response effort would occur at the intersections of major radial and circumferential highways that meet at-grade because of the need to provide "green time" for circumferential or mainline routes and only "red time" for traffic on the radial routes (the maximum cycle length currently planned for intersections with major cross streets is 240 seconds, whereas typical maximum cycle lengths are 180 seconds). Circumferential highways with grade-separated interchanges provide the best service during evacuations by permitting critical lateral flow and turning movements without impacting radial flow in a major way. In the ICC study area, which lies just north of Washington, DC, no east-west highway between the Capital Beltway and I-70, a distance of about 25 miles, serves this function, and the Capital Beltway is not expected to have the necessary capacity to handle the expected flows. In the study area there is no other continuous circumferential highway with interchanges that can serve this purpose.

Emergency response is required for a number of situations, ranging from the need to reach an area hospital by ambulance, to providing emergency police or fire rescue services, to homeland security measures associated with criminal or terrorist crises. During an emergency, the provision of emergency vehicle response becomes critical, particularly as it relates to getting prompt medical attention at area hospitals, or for biological, chemical, or nuclear response teams. Improving the response time of trained professionals who will have to deal with a crisis is a critical need in the study area and surrounding region.

Four major hospitals are located in or near the study area – Shady Grove Adventist, Montgomery General, Holy Cross, and Greater Laurel Beltsville. Four law enforcement facilities and numerous police stations are located within the study area, including two municipal and one Montgomery County police station, as well as the Montgomery County Park Police. The Park Police is a full service police agency and the Special Operations Center, located on Norwood Road, houses a majority of the Park police horses and motorcycles and also serves as the site of a

Maryland State Police helicopter facility. The Maryland State Police Barrack 'N' serves the study area, and the facility is located in Rockville, just west of the study area boundary. Seven fire companies are located within the study area, one in the Prince George's County portion and the remaining six in the Montgomery County portion.

In addition, several local, State, and Federal government facilities are located within or near the study area. These facilities are also a critical component of the emergency response and homeland security activities. Examples of these facilities include the Maryland National Guard, the FCC Monitoring Station, the Rockville and Laurel Armories, the Naval Reserve Training Center, the National Institutes of Health, the University of Maryland in College Park, and the FDA Facility in White Oak. The government facilities, hospitals, police stations, and fire stations located within or adjacent to the study area are shown on ***Figure I-11.***